

SEQUENCE LISTING

<110> Huang, Lan-Qing
Van Pel, Aline
Brasseur, Francis
De Plaen, Etienne
Boon, Thierry

<120> Tumour Rejection Antigens

<130> L0461/7115 (JRV)

<140> US 09/856,812

<141> 2001-05-25

<150> GB 9826143.1

<151> 1998-11-27

<160> 56

<170> PatentIn Ver. 2.1

<210> 1

<211> 369

<212> PRT

<213> Homo sapiens

<400> 1

Met Pro Arg Ala Pro Lys Arg Gln Arg Cys Met Pro Glu Glu Asp Leu
1 5 10 15

Gln Ser Gln Ser Glu Thr Gln Gly Leu Glu Gly Ala Gln Ala Pro Leu
20 25 30

Ala Val Glu Glu Asp Ala Ser Ser Ser Thr Ser Thr Ser Ser Ser Phe
35 40 45

Pro Ser Ser Phe Pro Ser Ser Ser Ser Ser Ser Ser Ser Cys Tyr
50 55 60

Pro Leu Ile Pro Ser Thr Pro Glu Glu Val Ser Ala Asp Asp Glu Thr
65 70 75 80

Pro Asn Pro Pro Gln Ser Ala Gln Ile Ala Cys Ser Ser Pro Ser Val
85 90 95

Val Ala Ser Leu Pro Leu Asp Gln Ser Asp Glu Gly Ser Ser Ser Gln
100 105 110

Lys Glu Glu Ser Pro Ser Thr Leu Gln Val Leu Pro Asp Ser Glu Ser
115 120 125

Leu Pro Arg Ser Glu Ile Asp Glu Lys Val Thr Asp Leu Val Gln Phe
130 135 140

Leu Leu Phe Lys Tyr Gln Met Lys Glu Pro Ile Thr Lys Ala Glu Ile
145 150 155 160

Leu Glu Ser Val Ile Lys Asn Tyr Glu Asp His Phe Pro Leu Leu Phe
165 170 175

Ser Glu Ala Ser Glu Cys Met Leu Leu Val Phe Gly Ile Asp Val Lys
180 185 190

Glu Val Asp Pro Thr Gly His Ser Phe Val Leu Val Thr Ser Leu Gly
195 200 205

Leu Thr Tyr Asp Gly Met Leu Ser Asp Val Gln Ser Met Pro Lys Thr
210 215 220

Gly Ile Leu Ile Leu Ile Leu Ser Ile Ile Phe Ile Glu Gly Tyr Cys
225 230 235 240

Thr Pro Glu Glu Val Ile Trp Glu Ala Leu Asn Met Met Gly Leu Tyr
245 250 255

Asp Gly Met Glu His Leu Ile Tyr Gly Glu Pro Arg Lys Leu Leu Thr
260 265 270

Gln Asp Trp Val Gln Glu Asn Tyr Leu Glu Tyr Arg Gln Val Pro Gly
275 280 285

Ser Asp Pro Ala Arg Tyr Glu Phe Leu Trp Gly Pro Arg Ala His Ala
290 295 300

Glu Ile Arg Lys Met Ser Leu Leu Lys Phe Leu Ala Lys Val Asn Gly
305 310 315 320

Ser Asp Pro Arg Ser Phe Pro Leu Trp Tyr Glu Glu Ala Leu Lys Asp
325 330 335

Glu Glu Glu Arg Ala Gln Asp Arg Ile Ala Thr Thr Asp Asp Thr Thr
340 345 350

Ala Met Ala Ser Ala Ser Ser Ser Ala Thr Gly Ser Phe Ser Tyr Pro
355 360 365

Glu

<210> 2
<211> 234
<212> PRT
<213> Homo sapiens

<400> 2
Met Leu Leu Gly Gln Lys Ser Gln Arg Tyr Lys Ala Glu Glu Gly Leu
1 5 10 15

Gln Ala Gln Gly Glu Ala Pro Gly Leu Met Asp Val Gln Ile Pro Thr
20 25 30

Ala Glu Glu Gln Lys Ala Ala Ser Ser Ser Ser Thr Leu Ile Met Gly
35 40 45

Thr Leu Glu Glu Val Thr Asp Ser Gly Ser Pro Ser Pro Pro Gln Ser
50 55 60

Pro Glu Gly Ala Ser Ser Ser Leu Thr Val Thr Asp Ser Thr Leu Trp

65 70 75 80

Ser Gln Ser Asp Glu Gly Ser Ser Ser Asn Glu Glu Glu Gly Pro Ser
85 90 95

Thr Ser Pro Asp Pro Ala His Leu Glu Ser Leu Phe Arg Glu Ala Leu
100 105 110

Asp Glu Lys Val Ala Glu Leu Val Arg Phe Leu Leu Arg Lys Tyr Gln
115 120 125

Ile Lys Glu Pro Val Thr Lys Ala Glu Met Leu Glu Ser Val Ile Lys
130 135 140

Asn Tyr Lys Asn His Phe Pro Asp Ile Phe Ser Lys Ala Ser Glu Cys
145 150 155 160

Met Gln Val Ile Phe Gly Ile Asp Val Lys Glu Val Asp Pro Ala Gly
165 170 175

His Ser Tyr Ile Leu Val Thr Cys Leu Gly Leu Ser Tyr Asp Gly Leu
180 185 190

Leu Gly Asp Asp Gln Ser Thr Pro Lys Thr Gly Leu Leu Ile Ile Val
195 200 205

Leu Gly Met Ile Leu Met Glu Gly Ser Arg Ala Pro Glu Glu Ala Ile
210 215 220

Trp Glu Ala Leu Ser Val Met Gly Ala Val
225 230

<210> 3
<211> 3510
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1955)..(3064)

<400> 3
cagggagatg gtggctttgg cgtgcaagac ccatacacgta ttcagcagga gggaaaggct 60
gggctgtcgg gagtaatct gaataccctgg aggacacccca aataaaggaa gtcccccgtct 120
tgtcccccttc ccctgcccac caccgggggg ccccccggca aatgtctgtct cttctgtca 180
gctttggaa tcccattgcag gtgtgatcgt gtgggtcccc tcccccacttc tgcctgcccc 240
gtctcaggaa ggtgaggacc ttgggtctgag ggttgcataag aagtttattac agggttccac 300
acttggtcaa cagaggggagg agtcccagaa tctgcaggac ccaagggggtg cccccccttagt 360
gaggactgga ggtacacctgca gcccagaaag aagggtatgtc acagagtctg gctgtccct 420
gttcttagct ctgaggggac ctgatcagga ttggcactaa gtggcaagct caattttacc 480
acaggcagga agatgaggaa ccctcaggaa aatggatgtt tgggttaaag gggagatatac 540
agccctggac accccacagg gatgacagga tgggttcct tcttactttt gttttggaaat 600
ctcaggggagg tgagaacctt gctctcagag ggtgactcaa gtcaacacag ggaaccccttc 660
ttttctacag acacagtggg tcgcaggatc tgacaagagt ccaggttaagg aacctgaggg 720
aaatctgagg gtaccccccac cccataacac agatggggtc cccacagaaaa tctgccatga 780
ccctactgtc actctggaga acccagtca ggtgtccgc tgagtctccc tgtcttatac 840
aaggatcaact ggtctctggg agggagaggt gtgggtctaa gggagctgca ctcgggtcag 900
cagagggagg gtcccagacc ctgccaggag tcaagggtgag gactgagggg acaccattct 960
ccaaacgcac aggactcagc cccaccctac cccttctgtc agccacggga attcatgggg 1020

aactgggggt agatggactc ccctcacttc ctctttccat gtctcctgga ggtaggacct 1080
tggtttaagg aagtggcctc agatcaacaa agggagggtc ccaggtcgta tcagggatca 1140
agaagaggac caagcaggct cctcacccca gtacacatgg acccagctga atatggccac 1200
ctcttgctgt ctttctggg aggacctctg cagttgtggc cagatgtggg tcccctcatg 1260
tcttctattt cgtatcaggg atgtaagctt ttgatctgag agtttcttag accagcaag 1320
gaggcagggtc taggctttc caggagaaag gtgagagccc cacgtgagca cagaggctcc 1380
ccaccccaagg gtatgtggga actcacagag tccagccac cctcctgaca acactgggag 1440
gctggggctg tgcttcagc ctgaaccctg agggccctc aattcctctt tcaggagctc 1500
cagggactgt gaggtgaggg cttggcttaa ggcagtgttt tcaggtcaca gaggcagaaag 1560
ggcccagaca gtgccaggag tcaagggtgag gtgcgtgccc tgaatgtgta ccaaggggcc 1620
cacctgctcc aggacaaaagt ggacccact gcatcagctc cacctaccct actgtcagtc 1680
ctggagccctt ggcctctgcc ggctgcattc tgaggagcca tctctcactt ctttcttcag 1740
gttctcaggg gacaggaga gcaagaggc aagagctgtg ggacaccaca gaggcagact 1800
gaaggagaag acctgttaagt tggccttgt tagaacctcc agggtgtggt tctcagctgt 1860
ggccacttac accctccctc tctccccagg cctgtgggtc cccatcgccc aagtcctgcc 1920

cacactccca cctgctaccc tgatcagagt catc atg cct cga gct cca aag cgt 1975
Met Pro Arg Ala Pro Lys Arg
1 5

cag cgc tgc atg cct gaa gaa gat ctt caa tcc caa agt gag aca cag 2023
Gln Arg Cys Met Pro Glu Glu Asp Leu Gln Ser Gln Ser Glu Thr Gln
10 15 20

ggc ctc gag ggt gca cag gct ccc ctg gct gtg gag gag gat gct tca 2071
Gly Leu Glu Gly Ala Gln Ala Pro Leu Ala Val Glu Glu Asp Ala Ser
25 30 35

tca tcc act tcc acc agc tcc tct ttt cca tcc tct ttt ccc tcc tcc 2119
Ser Ser Thr Ser Thr Ser Ser Phe Pro Ser Ser Phe Pro Ser Ser
40 45 50 55

tcc tct tcc tcc tcc tcc tcc tgc tat cct cta ata cca agc acc cca 2167
Ser Ser Ser Ser Ser Ser Cys Tyr Pro Leu Ile Pro Ser Thr Pro
60 65 70

gag gag gtt tct gct gat gat gag aca cca aat cct ccc cag agt gct 2215
Glu Glu Val Ser Ala Asp Asp Glu Thr Pro Asn Pro Pro Gln Ser Ala
75 80 85

cag ata gcc tgc tcc tcc ccc tcg gtc gtt gct tcc ctt cca tta gat 2263
Gln Ile Ala Cys Ser Ser Pro Ser Val Val Ala Ser Leu Pro Leu Asp
90 95 100

caa tct gat gag ggc tcc agc agc caa aag gag gag agt cca agc acc 2311
Gln Ser Asp Glu Gly Ser Ser Gln Lys Glu Ser Pro Ser Thr
105 110 115

cta cag gtc ctg cca gac agt gag tct tta ccc aga agt gag ata gat 2359
Leu Gln Val Leu Pro Asp Ser Glu Ser Leu Pro Arg Ser Glu Ile Asp
120 125 130 135

gaa aag gtg act gat ttg gtg cag ttt ctg ctc ttc aag tat caa atg 2407
Glu Lys Val Thr Asp Leu Val Gln Phe Leu Leu Phe Lys Tyr Gln Met
140 145 150

aag gag ccg atc aca aag gca gaa ata ctg gag agt gtc ata aaa aat 2455
Lys Glu Pro Ile Thr Lys Ala Glu Ile Leu Glu Ser Val Ile Lys Asn
155 160 165

tat gaa gac cac ttc cct ttg ttg ttt agt gaa gcc tcc gag tgc atg 2503
Tyr Glu Asp His Phe Pro Leu Leu Phe Ser Glu Ala Ser Glu Cys Met
170 175 180

ctg ctg gtc ttt ggc att gat gta aag gaa gtg gat ccc act ggc cac 2551
Leu Leu Val Phe Gly Ile Asp Val Lys Glu Val Asp Pro Thr Gly His
185 190 195

tcc ttt gtc ctt gtc acc tcc ctt ggc ctc acc tat gat ggg atg ctg 2599
Ser Phe Val Leu Val Thr Ser Leu Gly Leu Thr Tyr Asp Gly Met Leu
200 205 210 215

agt gat gtc cag agc atg ccc aag act ggc att ctc ata ctt atc cta 2647
Ser Asp Val Gln Ser Met Pro Lys Thr Gly Ile Leu Ile Leu Ile Leu
220 225 230

agc ata atc ttc ata gag ggc tac tgc acc cct gag gag gtc atc tgg 2695
Ser Ile Ile Phe Ile Glu Gly Tyr Cys Thr Pro Glu Glu Val Ile Trp
235 240 245

gaa gca ctg aat atg atg ggg ctg tat gat ggg atg gag cac ctc att 2743
Glu Ala Leu Asn Met Met Gly Leu Tyr Asp Gly Met Glu His Leu Ile
250 255 260

tat ggg gag ccc agg aag ctg ctc acc caa gat tgg gtg cag gaa aac 2791
Tyr Gly Glu Pro Arg Lys Leu Leu Thr Gln Asp Trp Val Gln Glu Asn
265 270 275

tac ctg gag tac cgg cag gtg cct ggc agt gat cct gca cgg tat gag 2839
Tyr Leu Glu Tyr Arg Gln Val Pro Gly Ser Asp Pro Ala Arg Tyr Glu
280 285 290 295

ttt ctg tgg ggt cca agg gct cat gct gaa att agg aag atg agt ctc 2887
Phe Leu Trp Gly Pro Arg Ala His Ala Glu Ile Arg Lys Met Ser Leu
300 305 310

ctg aaa ttt ttg gcc aag gta aat ggg agt gat cca aga tcc ttc cca 2935
Leu Lys Phe Leu Ala Lys Val Asn Gly Ser Asp Pro Arg Ser Phe Pro
315 320 325

ctg tgg tat gag gag gct ttg aaa gat gag gaa gag aga gcc cag gac 2983
Leu Trp Tyr Glu Ala Leu Lys Asp Glu Glu Glu Arg Ala Gln Asp
330 335 340

aga att gcc acc aca gat gat act act gcc atg gcc agt gca agt tct 3031
Arg Ile Ala Thr Thr Asp Asp Thr Thr Ala Met Ala Ser Ala Ser Ser
345 350 355

agc gct aca ggt agc ttc tcc tac cct gaa taa agtaagacag attcttcact 3084
Ser Ala Thr Gly Ser Phe Ser Tyr Pro Glu
360 365 370

gtgttttaaa aggcaagtca aataccacat gatTTTACTC atatgtggaa tctaaaaaaaa 3144
aaaaaaaaaa aagtggat catggaaagta gagagtagag cagtagttac attacaatta 3204
aataggagga ataagttcta gtgttctatt gcacagtagg atgactatag ttaacattaa 3264
gatattgtat attacaaaac agctagaagg aaggctttc aatattgtca ccaaaaagaa 3324
atgataaaatg catgaggtga tggatacact acctgatttg atcattatac tacatataca 3384
tgaatcagaa catcaaattg tacctcataa atatctacaa ttacatgtca gttttgttt 3444
atgtttttgt ttttttttaa ttatgaaaa caaatgagaa tggaaatcaa tgatgtatgt 3504
ggtgga 3510

<210> 4
<211> 2559
<212> DNA
<213> Homo sapiens

<400> 4
tccggggctcg ctcgagccgg ccgggactcg gggatcasaa gtaacggcgg yymkygtkct 60
gagggacagg cttgagatcg gctgaagaga gcggggcccaag gctctgtgag gaggcaaggg 120
aggtgagaac cttgtctca gagggtgact caagtcaaca cagggAACCC ctctttctca 180
cagacacagt gggtcgcagg atctgacaag agtccaggtt ctcagggac agggagagca 240
agaggtcaag agctgtggga caccacagag cagcactgaa ggagaagacc tgccctgtggg 300
tccccatcg ccaagtccgt cccacactcc cacctgctac cctgatcaga gtcatcatgc 360
ctcgagctcc aaagcgtcag cgctgcgtgc ctgaagaaga tcttaatcc caaagtgaga 420
cacagggcct cgagggtgc caggctcccc tggctgtggg ggaggatgct tcatcatcca 480
cttccaccag ctcctcttt ccattccctt tttccctcctc ctcccttcc tcctccctcct 540
cctgctatcc tctaataccca agcaccagg aggaggttt tgctgatgat gagacaccaa 600
atcccccaga gagtgcgtcag atagcctgct cctcccccctc ggtcggtgct tcccttccat 660
tagatcaatc ttagtggggc tccagcagcc aaaaggagga gagtccaaagc accctacagg 720
tcctgccaga cagttagtct ttacccagaa gtgagataga tgaaaagggtg actgattttg 780
tgcagtttct gctcttcaag tatcaaatga aggagccgat cacaaggca gaaatactgg 840
agaggtgtcat aaaaaattat gaagaccact tccctttgtt gtttagtgaa gcctccgagt 900
gcatgctgct ggtcttggc attgatgtaa aggaagtggc tcccaactggc cactccttgc 960
tccttgcac ctccttggc ctcacccatg atgggatgct gagtgtatgc cagagcatgc 1020
ccaagactgg catttcata cttatctaa gcataatctt catagagggc tactgcaccc 1080
ctgaggaggt catctggaa gcactgaata ttagtggggct gtatgtatggg atggagcacc 1140
tcatttatgg ggagccagg aagctgctca cccaagattt ggtgcaggaa aactacctgg 1200
agtacccgca ggtgcctggc agtgatcctg cacggtatga gtttctgtgg ggtccaaagg 1260
ctcatgctga aatttaggaag atgagtcctc tggaaattttt ggccaaaggta aatgggagtg 1320
atccaagatc cttcccactg tggatgagg aggcttggaa agatgaggaa gagagagccc 1380
aggacagaat tgccaccaca gatgatacta ctgccatggc cagtgcagaat tctagcgtca 1440
caggttagctt ctccttaccct gaataaaagta agacagattt ttcaactgtgt tttaaaaggc 1500
aagtcaaata ccacatgatt ttactcatat gtggaatctt aaaaaaaaaa aaaaaaaaaagt 1560
tggatcatg gaagtagaga gtagagcgt agttacatca caattaaata ggaggaataa 1620
gttcttagtgt tctattgcac agtaggatgtt ctatagttt cattaagata ttgtatatta 1680
caaaaacagt agaaggaaagg ctttcaata ttgtcaccaa aaagaaatga taaatgcatt 1740
aggtgatgga tacactaccc gatgtgatca ttatactaca tatacatgaa tcagaacatc 1800
aaattgtacc tcataaatat ctacaattac atgtcagttt ttgtttatgt ttttgggg 1860
tttttaatca tggaaacaaa tgagaatggaa aatcaatgtt gtatgtggg gaggccagg 1920
ctgaggctga gggaaataca gtgcataaca tctttgtctt actgtttct ttggataacc 1980
tggggacttc ttttctttc ttcttggat tttttttctt ttttcttctt cttctttttt 2040
tttttaatca aagtcactt ctattgctctt ggcaggagtg cagtgtgtca gtctcggtct 2100
actgcaactt ccgcctcctg ggttcaagcg atttcctgc ctcaatctcc tgatgtgt 2160
ggattacaag tggccaccac cataccggc taattttgtt ttttttagta gagatgggg 2220
ttcaccatgt tggccaggct ggtctcaaaac tccgtacccctc aggtatctg cccgcctc 2280
cctcccaag tgctggata acaggtgtga gcccaactgca ccccaacccctc ttcttggat 2340
tttaaaatgt tgtagttt actagaatgt ttatgagctt cagaatctaa ggtcacacgt 2400
tcgtttctgt ttatccaggta taagaaacag ttttgcattt ttgtaaaaca aattgggaac 2460
ccttcatca tatttgaat cttaataaaa ataacatggaa attggaaatag taatttctt 2520
gaaaatatga aaaaatagta aaatagagaa aataatttt 2559

<210> 5
<211> 3839
<212> DNA
<213> Homo sapiens

<220>
<221> CDS

<222> (2196)..(2900)

<400> 5
agtctcagat cactggagag aggtgcccc gaggccctaa ggaggactca gcagacacctc 60
catcatggcc taggaaacct gctcccactc tcaggtctgg gcacccaagg caggacagtg 120
gggaaggat gtggccccc cactttctgg taggggggccc tcaaggagat ggtggcctt 180
gcatgcaaga cacatccacg gttcagcagg aaggaaaggg ccatgccttgc tctggagta 240
aatatgaata cctggatgac acccagacag agaaagaccc catgaaacctt actacttctt 300
tcagccgtgg gaatccatg cagggttgc catgtatgc ctccttactt ctgcctctt 360
gttctcaggg aggttagcaac ctgggtctga agggcgtcct cagctcagca gagggagcca 420
cacctgttca acagagggac ggggtcacag gatctgcagg acccaagatg tgctcactt 480
gtgatgaatg ggggtactcc tggcctggaa agaaggagcc ccacaaaagtc tggctaactt 540
tggttattat ctctggggga acccgatcaa ggggtggccct aagtggagat ctcatctgt 600
ctgtgggcag gaagttgggg aaacgcagga agataaggatc ttgggtgtaa ggggagatgt 660
ctgctcatat cagggtgttgc tgggttgcagg aaggggcggg tccatcaggg gaaagatgaa 720
taaccccttgc aagaccttag aacccaccac tcaagaacaa gtagggacag atcctatgt 780
cacccttgcgac cacccttgcgac agtggtcatc agatgtgggt gctcccttgc tctctcttgc 840
gtctcagggaa agtgaggacc ttgttctcag agggcaactc aggacaaaac agggaccccc 900
atgtggcggaa cagactcagt ggtccaaagaa tctaccatcaga gtcttaggtgc caacactgag 960
ggaagattga gggtaccctc gatgggttgc cttagcaggca aaaaacagat gggggcccaa 1020
cagaaatctg cccggcctct tttgtcaccctt cttagcaggcat gagcaggact atcagctgag 1080
gcccctgtgt tataccagac tcattgttgc tgggttgcagg aaggccttgc tctgaggcga 1140
ctgcattcag gtcagcagag cgggggttccca agggcccttgcagg gactcagagg 1200
acaccactca ccaaaacacac aggacccaac cccacccttgc accttcttgc agccatggga 1260
agtgcaggaga aagggtgggt gatggatcc cctcatttgc tttccatgt tctcctggag 1320
atagggtcctt ggattaagga agtggcctca ggtcagccca ggacacatgg gccccatgt 1380
attttgttgc tctattgttgc ttttcttgc ttaggacaga cacgtggggcc ccattgttgc 1440
tttgttagtattt tcccaggagg ccttgggcat gtggggccag atgtgggttgc 1500
cttcataatcc ttgttcttgc ttttcttgc ttaggaggat ataaacttgc ttttcttgc 1560
cagcaaaagg gcccggatcc gggcccttgc gggggcccttgc aatgagcaca 1620
gaaaggacca tccacacaaa atagtggggat gtcacacatc ttaggatcc tcccttgc 1680
gcactggggat gtcggggcttgc tgcttgcgtt ctgcaggcttgc agttcccttgc gatttatctt 1740
ctaggagctc caggaaccag gctgttgcgtt ctgggttgc ggcaggatcc tcaatcacatc 1800
agcataagag gcccggatcc tagtagcgtt caagcttgc gggggcccttgc ttttcttgc 1860
taccagaggc ccccttgc ttaggatcc tcccttgc ttaggatcc tcccttgc 1920
cctttgttgc ttcagggttgc ttaggatcc tcccttgc ttaggatcc tcccttgc 1980
caatttcttgc ttcaagggttgc ttaggatcc tcccttgc ttaggatcc tcccttgc 2040
agcactgaag aagaccttgc ttaggatcc tcccttgc ttaggatcc tcccttgc 2100
tgaggccttgc cacacgttgc ctctcttgc ttaggatcc tcccttgc ttaggatcc tcccttgc 2160

gcccacactc tcctgttgc ctgacccatc tcatc atg ctt ctt ggg cag aag 2213
Met Leu Leu Gly Gln Lys
1 5

agt cag cgc tac aag gct gag gaa ggc ctt cag gcc caa gga gag gca 2261
Ser Gln Arg Tyr Lys Ala Glu Glu Gly Leu Gln Ala Gln Gly Glu Ala
10 15 20

cca ggg ctt atg gat gtg cag att ccc aca gct gag gag cag aag gct 2309
Pro Gly Leu Met Asp Val Gln Ile Pro Thr Ala Glu Glu Gln Lys Ala
25 30 35

gca tcc tcc tcc tct act ctg atc atg gga acc ctt gag gag gtg act 2357
Ala Ser Ser Ser Ser Thr Leu Ile Met Gly Thr Leu Glu Glu Val Thr
40 45 50

gat tct ggg tca cca agt cct ccc cag agt cct gag ggt gcc tcc tct 2405
Asp Ser Gly Ser Pro Ser Pro Pro Gln Ser Pro Glu Gly Ala Ser Ser
55 60 65 70

tcc ctg act gtc acc gac agc act ctg tgg agc caa tcc gat gag ggt	2453
Ser Leu Thr Val Thr Asp Ser Thr Leu Trp Ser Gln Ser Asp Glu Gly	
75 80 85	
tcc agc agc aat gaa gag gag ggg cca agc acc tcc ccg gac cca gct	2501
Ser Ser Ser Asn Glu Glu Glu Gly Pro Ser Thr Ser Pro Asp Pro Ala	
90 95 100	
cac ctg gag tcc ctg ttc cgg gaa gca ctt gat gag aaa gtg gct gag	2549
His Leu Glu Ser Leu Phe Arg Glu Ala Leu Asp Glu Lys Val Ala Glu	
105 110 115	
tta gtt cgt ttc ctg ctc cgc aaa tat caa att aag gag ccg gtc aca	2597
Leu Val Arg Phe Leu Leu Arg Lys Tyr Gln Ile Lys Glu Pro Val Thr	
120 125 130	
aag gca gaa atg ctt gag agt gtc atc aaa aat tac aag aac cac ttt	2645
Lys Ala Glu Met Leu Glu Ser Val Ile Lys Asn Tyr Lys Asn His Phe	
135 140 145 150	
cct gat atc ttc agc aaa gcc tct gag tgc atg cag gtg atc ttt ggc	2693
Pro Asp Ile Phe Ser Lys Ala Ser Glu Cys Met Gln Val Ile Phe Gly	
155 160 165	
att gat gtg aag gaa gtg gac cct gcc ggc cac tcc tac atc ctt gtc	2741
Ile Asp Val Lys Glu Val Asp Pro Ala Gly His Ser Tyr Ile Leu Val	
170 175 180	
acc tgc ctg ggc ctc tcc tat gat ggc ctg ctg ggt gat gat cag agt	2789
Thr Cys Leu Gly Leu Ser Tyr Asp Gly Leu Leu Gly Asp Asp Gln Ser	
185 190 195	
acg ccc aag acc ggc ctc ctg ata atc gtc ctg ggc atg atc tta atg	2837
Thr Pro Lys Thr Gly Leu Leu Ile Ile Val Leu Gly Met Ile Leu Met	
200 205 210	
gag ggc agc cgc gcc ccg gag gag gca atc tgg gaa gca ttg agt gtg	2885
Glu Gly Ser Arg Ala Pro Glu Glu Ala Ile Trp Glu Ala Leu Ser Val	
215 220 225 230	
atg ggg gct gta tga tgggagggag cacagtgtct attggaagct caggaagctg	2940
Met Gly Ala Val	
235	
ctcacccaag agtgggtgca ggagaactac ctggagttacc gccaggcgcc cggcagtgtat	3000
cctgtgcgt acgagttcct gtggggtcca agggcccttg ctgaaaccag ctatgtaaaa	3060
gtcctggagc atgtggtcag ggtcaatgca agagttcgca ttccctaccc atccctgcata	3120
gaagaggctt tgggagagga gaaaggagtt tgagcaggag ttgcagctag ggccagtggg	3180
gcagggttgc ggagggcctg ggccagtgc cgttccaggcc ccacatccac cactttccct	3240
gctctgttac atgaggccca ttcttcaactc tgggtttgaa gagagcagtc acagttctca	3300
gtagtgggaa gcatgttggg tggagggaa cacagtgtgg accatctctc agttcctgtt	3360
ctattggccg atttggaggt ttatcttgc ttccctttgg aattgttcca atgttccctc	3420
taatggatgg tgtaatgaac ttcaacattc attttatgtt tgacagttaga cagacttact	3480
gcttttata tagtttagga gtaagagtct tgctttcat ttatactggg aaacccatgt	3540
tatttcttga attcagacac tacaagagca gaggattaag gtttttttag aaatgtaaaa	3600
caacatagca gtaaaataca tgagataaag acataaaagaa attaaacaat agttaattct	3660
tgccttaccc gtacacttta gtgtacccta tgtaacctgaa tttgcggc ttcttgaga	3720
atgaaattga attaaatatg aataaataag tccccctgct cactggctca tttttccca	3780
aaatattcat tgagcttccg ctatggaa gcccctgggt tagtattgga gatgctaca	3839

<210> 6
<211> 1810
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (452)..(1153)

<400> 6
gagctccagg aaccaggctg tgaggtcttg gtctgaggca gtatcttcaa tcacagagca 60
taagaggccc aggcagttagt agcagtcaag ctgaggtggt gttcccccctg tatgtataacc 120
agaggccccct ctggcatcag aacagcagga accccacagt tcctggccct accagccctt 180
ttgtcagttcc tggagccttg gcctttgcca ggaggctgca ccctgagatg ccctctcaat 240
ttctccttca ggttcgcaga gaacagggca gccaggaggt caggaggccc cagagaagca 300
ctgaagaaga cctgtaaagta gaccttgtt agggcatcca gggtgttagta cccagctgag 360
gcctctcaca cgcttcctct ctccccaggc ctgtgggtct caattgccc gctccggccc 420

acactctct gctgcccctga cctgagtcat c atg ctt ctt ggg cag aag agt 472
Met Leu Leu Gly Gln Lys Ser
1 5

cag cgc tac aag gct gag gaa ggc ctt cag gcc caa gga gag gca cca 520
Gln Arg Tyr Lys Ala Glu Glu Gly Leu Gln Ala Gln Gly Glu Ala Pro
10 15 20

ggg ctt atg gat gtg cag att ccc aca gct gag gag cag aag gct gca 568
Gly Leu Met Asp Val Gln Ile Pro Thr Ala Glu Glu Gln Lys Ala Ala
25 30 35

tcc tcc tcc tct act ctg atc atg gga acc ctt gag gag gtg act gat 616
Ser Ser Ser Ser Thr Leu Ile Met Gly Thr Leu Glu Glu Val Thr Asp
40 45 50 55

tct ggg tca cca agt cct ccc cag agt cct gag ggt gcc tcc tct tcc 664
Ser Gly Ser Pro Ser Pro Gln Ser Pro Glu Gly Ala Ser Ser Ser
60 65 70

ctg act gtc acc gac agc act ctg tgg agc caa tcc gat gag ggt tcc 712
Leu Thr Val Thr Asp Ser Thr Leu Trp Ser Gln Ser Asp Glu Gly Ser
75 80 85

agc agc aat gaa gag gag ggg cca agc acc tcc ccg gac cca gct cac 760
Ser Ser Asn Glu Glu Gly Pro Ser Thr Ser Pro Asp Pro Ala His
90 95 100

ctg gag tcc ctg ttc cgg gaa gca ctt gat gag aaa gtg gct gag tta 808
Leu Glu Ser Leu Phe Arg Glu Ala Leu Asp Glu Lys Val Ala Glu Leu
105 110 115

gtt cgt ttc ctg ctc cgc aaa tat caa att aag gag ccg gtc aca aag 856
Val Arg Phe Leu Leu Arg Lys Tyr Gln Ile Lys Glu Pro Val Thr Lys
120 125 130 135

gca gaa atg ctt gag agt gtc atc aaa aat tac aag aac cac ttt cct 904
Ala Glu Met Leu Glu Ser Val Ile Lys Asn Tyr Lys Asn His Phe Pro
140 145 150

gat atc ttc agc aaa gcc tct gag tgc atg cag gtg atc ttt ggc att 952

Asp Ile Phe Ser Lys Ala Ser Glu Cys Met Gln Val Ile Phe Gly Ile
155 160 165
gat gtg aag gaa gtc gac cct gcc ggc cac tcc tac atc ctt gtc acc 1000
Asp Val Lys Glu Val Asp Pro Ala Gly His Ser Tyr Ile Leu Val Thr
170 175 180
tgc ctg ggc ctc tcc tat gat ggc ctg ctg ggt gat gat cag agt acg 1048
Cys Leu Gly Leu Ser Tyr Asp Gly Leu Leu Gly Asp Asp Gln Ser Thr
185 190 195
ccc aag acc ggc ctc ctg ata atc gtc ctg ggc atg atc tta atg gag 1096
Pro Lys Thr Gly Leu Leu Ile Ile Val Leu Gly Met Ile Leu Met Glu
200 205 210 215
ggc agc cgc gcc ccg gag gag gca atc tgg gaa gca ttg agt gtg atg 1144
Gly Ser Arg Ala Pro Glu Glu Ala Ile Trp Glu Ala Leu Ser Val Met
220 225 230
ggg gct gta tggatggagg gagcacatgt tctattggaa gctcaggaag 1193
Gly Ala Val
ctgctcaccc aagagtgggt gcaggagaac tacctggagt accggcaggc gcccggcagt 1253
gatcctgtgc gctacgagtt cctgtgggt ccaaggccccc ttgctgaaac cagctatgtg 1313
aaagtccctgg agcatgtgggt cagggtcaat gcaagagttc gcatttccta cccatccctg 1373
catgaagagg ctggggaga ggagaaaagga gtttggcagc gagttgcagc tagggccagt 1433
ggggcaggtt gtggggaggc ctggggccagt gcacgttcca gggccacatc caccacttc 1493
cctgctctgt tacatgagggc ccattttca ctctgtgttt gaagagagca gtcacagttc 1553
tcagtagttt ggagcatgtt ggggtgtgagg gaacacatgt tggaccatct ctcagttcct 1613
gttctattgg gcgatttggaa ggtttatctt tggatccctt tggaaattgtt ccaatgttcc 1673
ttctaatgga tggatgtatg aacttcaaca ttcattttat gtatgacagt agacagactt 1733
actgctttt atatagtttta ggagtaagag tcttgccttt cattataact gggaaaccca 1793
tggttatttct tgaattc 1810

<210> 7
<211> 920
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (334)..(918)

<400> 7
acctgctcca ggacaaaatg gaccccaactg catcagctcc acctacccta ctgtcagtc 60
tggagccttg gcctctgccg gtcgcatttc gaggagccat ctctcaattc cttcttcagg 120
ttctcagggg acagggagag caagaggatca agagctgtgg gacaccacag agcagcaactg 180
aaggagaaga cctgtaaatg ggcctttgtt agaaccttcca ggggtgtgggtt ctcagctgtg 240
gccacttaca ccctccctct ctccccaggc ctgtgggtcc ccatcgccca agtcctgccc 300

acactccac ctgctaccct gatcagatgc atc atg cct cga gct cca aag cgt 354
Met Pro Arg Ala Pro Lys Arg
1 5

cag cgc tgc atg cct gaa gaa gat ctt caa tcc caa agt gag aca cag 402
Gln Arg Cys Met Pro Glu Glu Asp Leu Gln Ser Gln Ser Glu Thr Gln
10 15 20

ggc ctc gag ggt gca cag gct ccc ctg gct gtg gag gag gat gct tca	450
Gly Leu Glu Gly Ala Gln Ala Pro Leu Ala Val Glu Glu Asp Ala Ser	
25 30 35	
tca tcc act tcc acc agc tcc tct ttt cca tcc tct ttt ccc tcc tcc	498
Ser Ser Thr Ser Thr Ser Ser Phe Pro Ser Ser Phe Pro Ser Ser	
40 45 50 55	
tcc tct tcc tcc tcc tcc tgc tat cct cta ata cca agc acc cca	546
Ser Ser Ser Ser Ser Ser Cys Tyr Pro Leu Ile Pro Ser Thr Pro	
60 65 70	
gag gag gtt tct gct gat gat gag aca cca aat cct ccc cag agt gct	594
Glu Glu Val Ser Ala Asp Asp Glu Thr Pro Asn Pro Pro Gln Ser Ala	
75 80 85	
cag ata gcc tgc tcc tcc ccc tcg gtc gtt gct tcc ctt cca tta gat	642
Gln Ile Ala Cys Ser Ser Pro Val Val Ala Ser Leu Pro Leu Asp	
90 95 100	
caa tct gat gag ggc tcc agc agc caa aag gag gag agt cca agc acc	690
Gln Ser Asp Glu Gly Ser Ser Gln Lys Glu Ser Pro Ser Thr	
105 110 115	
cta cag gtc ctg cca gac agt gag tct tta ccc aga agt gag ata gat	738
Leu Gln Val Leu Pro Asp Ser Glu Ser Leu Pro Arg Ser Glu Ile Asp	
120 125 130 135	
gaa aag gtg act gat ttg gtg cag ttt ctg ctc ttc aag tat caa atg	786
Glu Lys Val Thr Asp Leu Val Gln Phe Leu Leu Phe Lys Tyr Gln Met	
140 145 150	
aag gag ccg atc aca aag gca gaa ata ctg gag agt gtc ata aaa aat	834
Lys Glu Pro Ile Thr Lys Ala Glu Ile Leu Glu Ser Val Ile Lys Asn	
155 160 165	
tat gaa gac cac ttc cct ttg ttg ttt agt gaa gcc tcc gag tgc atg	882
Tyr Glu Asp His Phe Pro Leu Leu Phe Ser Glu Ala Ser Glu Cys Met	
170 175 180	
ctg ctg gtc ttt ggc att gat gta aag gaa gtg gat cc	920
Leu Leu Val Phe Gly Ile Asp Val Lys Glu Val Asp	
185 190 195	

<210> 8
<211> 9
<212> PRT
<213> Homo sapiens

<400> 8
Glu Ala Asp Pro Thr Gly His Ser Tyr
1 5

<210> 9
<211> 9
<212> PRT
<213> Homo sapiens

<400> 9
Ser Ala Tyr Gly Glu Pro Arg Lys Leu
1 5

<210> 10
<211> 9
<212> PRT
<213> Homo sapiens

<400> 10
Glu Val Asp Pro Ile Gly His Leu Tyr
1 5

<210> 11
<211> 9
<212> PRT
<213> Homo sapiens

<400> 11
Phe Leu Trp Gly Pro Arg Ala Leu Val
1 5

<210> 12
<211> 10
<212> PRT
<213> Homo sapiens

<400> 12
Met Glu Val Asp Pro Ile Gly His Leu Tyr
1 5 10

<210> 13
<211> 9
<212> PRT
<213> Homo sapiens

<400> 13
Ala Ala Arg Ala Val Phe Leu Ala' Leu
1 5

<210> 14
<211> 8
<212> PRT
<213> Homo sapiens

<400> 14
Tyr Arg Pro Arg Pro Arg Arg Tyr
1 5

<210> 15
<211> 10
<212> PRT
<213> Homo sapiens

<400> 15
Ser Pro Ser Ser Asn Arg Ile Arg Asn Thr
1 5 10

<210> 16
<211> 9
<212> PRT
<213> Homo sapiens

<400> 16
Val Leu Pro Asp Val Phe Ile Arg Cys
1 5

<210> 17
<211> 10
<212> PRT
<213> Homo sapiens

<400> 17
Val Leu Pro Asp Val Phe Ile Arg Cys Val
1 5 10

<210> 18
<211> 9
<212> PRT
<213> Homo sapiens

<400> 18
Glu Glu Lys Leu Ile Val Val Leu Phe
1 5

<210> 19
<211> 9
<212> PRT
<213> Homo sapiens

<400> 19
Glu Glu Lys Leu Ser Val Val Leu Phe
1 5

<210> 20
<211> 10
<212> PRT
<213> Homo sapiens

<400> 20
Ala Cys Asp Pro His Ser Gly His Phe Val
1 5 10

<210> 21
<211> 10
<212> PRT
<213> Homo sapiens

<400> 21
Ala Arg Asp Pro His Ser Gly His Phe Val
1 5 10

<210> 22
<211> 9
<212> PRT
<213> Homo sapiens

<400> 22
Ser Tyr Leu Asp Ser Gly Ile His Phe
1 5

<210> 23
<211> 9
<212> PRT
<213> Homo sapiens

<400> 23
Ser Tyr Leu Asp Ser Gly Ile His Ser
1 5

<210> 24
<211> 9
<212> PRT
<213> Homo sapiens

<400> 24
Met Leu Leu Ala Val Leu Tyr Cys Leu
1 5

<210> 25
<211> 9
<212> PRT
<213> Homo sapiens

<400> 25
Tyr Met Asn Gly Thr Met Ser Gln Val
1 5

<210> 26
<211> 9
<212> PRT
<213> Homo sapiens

<400> 26
Ala Phe Leu Pro Trp His Arg Leu Phe
1 5

<210> 27
<211> 9
<212> PRT
<213> Homo sapiens

<400> 27
Ser Glu Ile Trp Arg Asp Ile Asp Phe
1 5

<210> 28
<211> 9
<212> PRT
<213> Homo sapiens

<400> 28
Tyr Glu Ile Trp Arg Asp Ile Asp Phe
1 5

<210> 29
<211> 15
<212> PRT
<213> Homo sapiens

<400> 29
Gln Asn Ile Leu Leu Ser Asn Ala Pro Leu Gly Pro Gln Phe Pro
1 5 10 15

<210> 30
<211> 15
<212> PRT
<213> Homo sapiens

<400> 30
Asp Tyr Ser Tyr Leu Gln Asp Ser Asp Pro Asp Ser Phe Gln Asp
1 5 10 15

<210> 31
<211> 9
<212> PRT
<213> Homo sapiens

<400> 31
Ala Ala Gly Ile Gly Ile Leu Thr Val
1 5

<210> 32
<211> 10
<212> PRT
<213> Homo sapiens

<400> 32
Glu Ala Ala Gly Ile Gly Ile Leu Thr Val
1 5 10

<210> 33
<211> 9
<212> PRT
<213> Homo sapiens

<400> 33
Ile Leu Thr Val Ile Leu Gly Val Leu
1 5

<210> 34
<211> 9
<212> PRT
<213> Homo sapiens

<400> 34
Lys Thr Trp Gly Gln Tyr Trp Gln Val
1 5

<210> 35
<211> 9
<212> PRT
<213> Homo sapiens

<400> 35
Ile Thr Asp Gln Val Pro Phe Ser Val
1 5

<210> 36
<211> 9
<212> PRT
<213> Homo sapiens

<400> 36
Tyr Leu Glu Pro Gly Pro Val Thr Ala
1 5

<210> 37
<211> 10
<212> PRT
<213> Homo sapiens

<400> 37
Leu Leu Asp Gly Thr Ala Thr Leu Arg Leu
1 5 10

<210> 38
<211> 10
<212> PRT
<213> Homo sapiens

<400> 38
Val Leu Tyr Arg Tyr Gly Ser Phe Ser Val
1 5 10

<210> 39
<211> 9
<212> PRT
<213> Homo sapiens

<400> 39
Leu Tyr Val Asp Ser Leu Phe Phe Leu
1 5

<210> 40
<211> 12
<212> PRT

<213> Homo sapiens

<400> 40
Lys Ile Ser Gly Gly Pro Arg Ile Ser Tyr Pro Leu
1 5 10

<210> 41
<211> 9
<212> PRT
<213> Homo sapiens

<400> 41
Tyr Met Asp Gly Thr Met Ser Gln Val
1 5

<210> 42
<211> 9
<212> PRT
<213> Homo sapiens

<400> 42
Gly Leu Tyr Asp Gly Met Glu His Leu
1 5

<210> 43
<211> 9
<212> PRT
<213> Homo sapiens

<400> 43
Gly Leu Tyr Asp Gly Arg Glu His Ser
1 5

<210> 44
<211> 10
<212> PRT
<213> Homo sapiens

<400> 44
Gly Leu Tyr Asp Gly Met Glu His Leu Ile
1 5 10

<210> 45
<211> 10
<212> PRT

<213> Homo sapiens

<400> 45
Gly Leu Tyr Asp Gly Arg Glu His Ser Val
1 5 10

<210> 46
<211> 9
<212> PRT
<213> Homo sapiens

<400> 46
Met Leu Leu Val Phe Gly Ile Asp Val
1 5

<210> 47
<211> 10
<212> PRT
<213> Homo sapiens

<400> 47
Cys Met Leu Leu Val Phe Gly Ile Asp Val
1 5 10

<210> 48
<211> 9
<212> PRT
<213> Homo sapiens

<400> 48
Phe Leu Leu Phe Lys Tyr Gln Met Lys
1 5

<210> 49
<211> 9
<212> PRT
<213> Homo sapiens

<400> 49
Phe Ile Glu Gly Tyr Cys Thr Pro Glu
1 5

<210> 50
<211> 9
<212> PRT
<213> Homo sapiens

<400> 50
Gly Leu Glu Leu Ala Gln Ala Pro Leu
1 5

<210> 51
<211> 29

<212> DNA
<213> Homo sapiens

<400> 51
ggaattcatc atgcctcgag ctccaaagc 29

<210> 52
<211> 31
<212> DNA
<213> Homo sapiens

<400> 52
gctctagagc ttaggctatc tgagcactct g 31

<210> 53
<211> 31
<212> DNA
<213> Homo sapiens

<400> 53
gctctagagc ttagcactcg gaggcttcac t 31

<210> 54
<211> 31
<212> DNA
<213> Homo sapiens

<400> 54
gctctagagc ttaccaatct tgggtgagca g 31

<210> 55
<211> 21
<212> DNA
<213> Homo sapiens

<400> 55
cacagagcag cactgaagga g 21

<210> 56
<211> 23
<212> DNA
<213> Homo sapiens

<400> 56
ctgggtaaag actcactgtc tgg 23